

REMARKS

Claims 12-24 remain pending in the application.

A minor amendment has been made to claim 12 for the purpose of clarifying antecedent basis. This amendment does not introduce new matter or raise new issues requiring further consideration and/or search. For these reasons, approval and entry of this minor claim amendment are respectfully requested.

As a preliminary matter, Applicants respectfully request that the finality of rejection be withdrawn. The amendments presented in Applicants' communication of February 3, 2004 did not necessitate the new grounds of rejection for the following reasons. First, said amendments were presented for clarification purposes, and were not meant to alter the intended scope of the claims, other than to omit the term "automobile" previously recited in claim 1. The omission of the term "automobile" certainly did not necessitate the new ground of rejection. Second, the new grounds of rejection are misplaced and, therefore, could not have been necessitated by said previous amendments.

Claims 12-24 have been rejected under 35 U.S.C. § 103(a) (hereinafter "Section 103") as being unpatentable over U.S. Patent No. 5,736,935 to Lambropoulos (hereinafter "Lambropoulos") in view of U.S. Patent No. 5,479,442 to Yamamoto (hereinafter "Yamamoto").

Applicants respectfully traverse this rejection.

The invention is directed to a system for controlling locking/unlocking means of an openable panel of a vehicle. The system comprises a vehicle transmission/reception means (3, 4, 5) carried by the vehicle for transmitting an interrogation signal, and a

transmission/reception means (9, 10, 11) intended to be carried by a user for transmitting the response signal for controlling unlocking actuation of the operable panel.

Conventional locking/unlocking systems pose security problems due to their susceptibility to signal interception. For example, an "ill-intentioned" person may intercept and copy the interrogation signal from a vehicle transmission/reception means, use the intercepted interrogation system to activate and acquire a response signal from a user transmission/reception means, then later use the intercepted response signal to unlock the vehicle door when the authorized user is not present.

To overcome this problem, the vehicle and user transmission/reception means of the system of the present invention employ circular shift registers for storing a pseudo-random code. Upon transmission of the code from the vehicle transmission/reception means to the user transmission/reception means or vice versa, the receiving de-spreading means will de-spread the received signal *unless* the pseudo-random code carried by the signal is not synchronized. Synchronization calls for substantial correlation between the pseudo-random code of the received signal with a corresponding stored pseudo-random code by a "shift" less than that which would be required for an intermediate transmission means to intercept the transmitted signal and retransmit a response signal.

For example, in the embodiment illustrated in Figure 2, correlation between the pseudo-random codes is a maximum when the transmission of a signal from one of the transmission/reception means is substantially concomitant with its reception by the other transmission/reception means. On the other hand, the unintended interception of the interrogation signal and later acquisition and use of the response signal by an ill-intentioned person will delay the transmission, varying the correlation value as a function

of the phase shift between the pseudo-random code carried by the received signal and pseudo-random code of the shift register of the receiving transmission/reception means. If the correlation is not within acceptable parameters, then the system does not unlock the vehicle doors.

Lambropoulos has been cited for its alleged disclosure of a system and method for controlling the locking and unlocking of an openable panel of a vehicle. However, the Examiner has acknowledged that Lambropoulos differs from the present invention in failing to disclose the following features:

- vehicle memory means comprising a vehicle circular shift register in which is stored a pseudo-random code;

- vehicle transmission means for transmitting an interrogation signal which carries the pseudo-random code; vehicle de-spreading means for de-spreading a response signal received unless a pseudo-random code carried by the response signal is not synchronized in substantial correlation with a corresponding pseudo-random code stored in the vehicle memory means by a shift less than required for an intermediate transmission means to intercept and re-transmit a response signal;

- user memory means comprising a user circular shift register in which is stored the pseudo-random code;

- user de-spreading means for de-spreading the transmission signal received unless the pseudo-random code carried by the interrogation signal is not synchronized in substantial correlation with the corresponding pseudo-random code stored in the user memory means by a shift less than required for an intermediate transmission means to intercept and re-transmit the interrogation signal; and

-- user transmission means for transmitting the response signal which carries the pseudo-random code and the signature which is specific to the user transmission/reception means.

10 Applicants respectfully submit that Yamamoto does not overcome each of these deficiencies. In Yamamoto, neither the transmission means nor the receiving means checks for synchronization of the pseudo-random code in the manner set forth in the claims. Rather, Yamamoto uses the correlation unit 161 and the PN code generator 162 for the purpose of de-spreading the received, demodulated signal into its original base band signal 164 (see FIG. 4 of Yamamoto), which is then subjected to decoding. The de-spreading process, and its use of the correlation unit 161, is shown in Fig. 4 and described at column 5, lines 6-16.

The signal received [by the receiver] is demodulated through the RF amplifier 12 and super-regenerative demodulator 13 and then shaped through the amplifier 14 and waveform shaper 15, resulting in a pulse waveform as indicated at b [231] in FIG. 4.

20 Also, the PN code generated by the receiver [in FIG. 1] has a pulse waveform as indicated at d [163] in FIG. 4. The correlation unit 161 of the reverse-spreader 16 provides an output waveform of a sharp peak indicated at e in FIG. 4, which is obtained by multiplying the pulse waveform b [231] in FIG. 4 by the pulse waveform d [163] in FIG. 4.

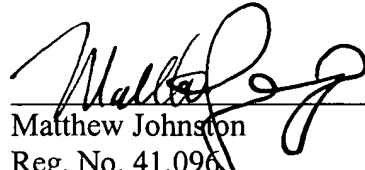
21 Yamamoto does not teach checking the transmitted and received signal to ensure sufficient synchronicity to rule out interception of the signal. To the contrary, the transmitted signal includes a synchronous code SYNC, presumably for placing the
24 alleged circular shift registers into synchronicity.

For these reasons, the Section 103 rejection should be withdrawn. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Applicant respectfully submits that no extension fee is required. Should Applicant be mistaken, please accept this paper as a petition for extension and proceed with charging our Account No. 50-0548 for the extension fee.

If, after reviewing the above amendments and remarks, the Examiner believes that any issues remain unresolved, the Examiner is respectfully requested to contact the undersigned, by telephone, to schedule an interview to address such issues.

Respectfully submitted,


Matthew Johnston
Reg. No. 41,096

LINIAK, BERENATO & WHITE
6550 Rock Spring Drive
Suite 240
Bethesda, Maryland 20817
Telephone: (301) 896-0600
Facsimile: (301) 896-0607